

INFLOW TO RESERVOIRS.

1. It must be kept in mind that while the natural inflow to these reservoirs was small this past season it may be double or treble this amount in normal years. It varies throughout the season. At the Union Reservoir on July 4 this year it was greater than later in the season. The large inflow on July 4 being due to snow which at that time had not entirely melted, while that of the latter part of the season was due to natural springs which undoubtedly flow the entire year without much variation in volume.
2. When the reservoirs have receded to their natural level this natural inflow would probably never reach the river if it were not for the fact that present outlets are lower than they formerly were. It is quite probable that after the water surface in the lakes has receded below the level of the outlets that the water flowing into the reservoirs is lost by evaporation and seepage and that there is no visible outflow. In order to bring this clearer to mind and also to dispel the question that there may be some invisible springs or some inflow that cannot be seen I am submitting the results from the experiment which was made by you and myself on Wall Lake reservoir. On August 27 at 6:40 P. M. the gate in the outlet pipe was closed tight and no water allowed to escape; three gage hubs were then set around the shore line of the reservoir as follows: one in the southwest corner, one in the northwest corner, and one on the east side. These three hubs were set so as to have a check against any wind or wave action and were very carefully set flush with the water surface while the

reservoir was comparatively calm. On August 29 at 4:40 P. M. after these hubs had been allowed to remain undisturbed for 46 hours they were observed with these results. At the hub set in the northwest corner the water surface was found to be 0.020 of a foot or $\frac{1}{4}$ inch below the top of the hub; at the one in the southwest corner the water surface was found to be 0.035 of a foot or $\frac{7}{16}$ of an inch below the top of the hub; at the one in the east side the water surface was found to be 0.035 of a foot or $\frac{7}{16}$ inch below the top of the hub. Taking the average drop of 0.03 of a foot or $\frac{3}{8}$ inch over a surface area of 58 acres equals 1.74 acre foot loss in 46 hours or is equal to 0.45 second feet flowing continually. There was no visible inflow to this reservoir at the time this experiment was made.

3. Washington Lake reservoir has the largest natural inflow of any of the reservoirs on the Provo river. On July 4 this year this natural inflow was approximately $2\frac{1}{2}$ second feet; on August 29 it was 0.75 second feet, less than $\frac{1}{3}$ as much. This includes the water feeding into the tributaries. On the latter date the surface area was about 45 acres.

4. Trial Lake reservoir on July 4 had a natural inflow of about $2\frac{1}{2}$ second feet; on August 27 the inflow was 0.30 second feet. The surface area at this time was about 32 acres.

5. Wall Lake reservoir on July 4 and had a natural inflow of about $2\frac{1}{2}$ second feet which had entirely ceased on August 27.

6. From the experiment conducted on Wall Lake it would seem that the largest part of the inflow is lost. The

seepage may or may not run to the river. It is my opinion that it does not because of the inclination of the strata. The top soil in this vicinity is of very shallow depth over solid rock which almost without exception along the divide between the Weber and the Provo over the eight or ten miles that I have had occasion^s to observe is inclined from ten to fifteen degrees with the horizontal toward the north west the average bearing being about ^{north} 40 degrees west. You will note from the sketch that the main river with its tributaries flows almost due south. In view of the above it is my opinion that most of the water that may find its ^{way} / into the mountains at the head of the Provo drains into the Weber. Further investigation ^{probably} will show that the South Fork or rather the south side of the Provo with a smaller water shed but a different dip contributes more water in the late summer season than the main river. This being due to the water stored, while on the main fork the runoff is early and quick.

The point that I desire to bring to mind is that because of the formation there is no considerable storage water in the mountains.

The water that does not find its way to the river quickly is held on the surface by means of natural lakes. A glance at the Hayden peak Quadrangle map U. S. G. S. will bring this fact to view.